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**INSTRUCTION No2**

**for the use of disinfectant "Sabisept M"**

(LLC Research Development Company "Sabina-Grand", Russia)

for preventive disinfection at municipal enterprises, educational establishments, cultural, leisure, sport, and social maintenance, child welfare institutions.

Moscow  
2005

**INSTRUCTION No2**  
**for the use of disinfectant “Sabisept M”**  
(LLC Research Development Company “Sabina-Grand”, Russia)  
at medical and preventive treatment institutions and foci of infections

The instruction is developed by Scientific Research Institute of Disinfectology (SRID) of the Ministry of Public Health of the Russian Federation,

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**General Information**

1.1 Detergent «Sabisept M» is a transparent colorless or yellow liquid. It contains the following active agents: alkyldimethylbenzylammonia chloride (ADBC) – 12% and basic nitrile – 3.5%, besides, it includes neonol and other components. pH 2% of the detergent solution – 5.6 – 8.0.

Storage life of the detergent in the open producers’ package is 5 years, working solutions – 14 days on condition of storing in closed package.

The detergent is produced in polymer bottles of 1 dm<sup>3</sup> and containers of 3 and 5 dm<sup>3</sup>.

1.2 The detergent “Sabisept M” has counter bacillicidal (including tuberculocide), virucidal and fungicide (in regard to fungi of the following types: Candida, Trichophyton, Aspergillus) activity and washing properties.

1.3 The detergent “Sabisept M” in regard to the parameters of acute toxicity in accordance with the State Standard 12.1.007-76 on injection into the stomach is referred to the third class of moderately dangerous substances, on applying onto the skin it is referred to the fourth class of low hazardous substances; on injection to the abdomen it is referred to the fourth class of practically non-toxic substance in accordance with classification by K.K. Sidorov. In regard to fugacity the vapor of the detergent and working solutions on one-time inhalant effect is low-hazardous. The detergent produces local irritating effect on the skin and evident effect on conjunctiva and has weak sensobilizing effect.

Working solutions in the form of aerosol and vapor cause irritation of mucous coat of upper respiratory passages. The area of acute toxic action is ≤ 1.

Maximum allowable concentration (MAC) in the air of the working zone for alkyldime-tilbenzylammonia chloride is 1 mg/m<sup>3</sup>

MAC in the air of the working zone for the basic nitrile is 2 mg/m<sup>3</sup>.

1.4 The detergent «Sabisept M» is used for: Disinfection of surfaces in premises, devices and equipment surfaces, solid furniture surfaces; disinfection of sanitary technical equipment, rubber mats, items for dishwashing, cleaning equipment, tableware, linen, toys (except for toys), items for personal care and hygiene, footwear (from rubber, plastic, other polymer materials), instruments (cosmetic and hairdresser’), wastes (disposable items – throw-overs, caps, instruments and other) in cases of preventive disinfection at municipal enterprises (hotels, hostels, hairdresser’s, saunas, laundries, caterings, industrial markets, public WCs ), educational establishments, culture, leisure, sport institutions (swimming pools, sport and fitness centres, offices, cinemas and etc.) penitentiary and social welfare institutions, child welfare institutions.;

- Clear outs;
- Processing the surfaces to get rid of moulds.

**2. Preparation of working solutions of detergent**

Working solutions are prepared in containers of any material by adding the corresponding quantity of the detergent «Sabisept M» to drinking (tape) water of room temperature (table 1).

**Table 1 – Preparation of working detergent solution**

Concentration of the working solution (%) for:		The number of components (ml) necessary for the preparation of the working solution of the following volume:	
Detergent	Active agents	1 litre	10 litres

	ADBC	Detergent	Water	Detergent	Water	Вода
0.1	0.012	0.0035	1	999	10	9990
0.2	0.024	0.007	2	998	20	9980
0.5	0.06	0.017	5	995	50	9950
1.0	0.12	0.035	10	990	100	9900
2.0	0.24	0.07	20	980	200	9800
3.0	0.36	0.10	30	970	300	9700
4.0	0.48	0.14	40	960	400	9600
10.0	1.2	0.35	100	900	1000	9000

### 3. Application of Solutions of the Detergent «Sabisept M»

**3.1** Solutions of the detergent «Sabisept M» are used for disinfection of surfaces in premises (floor, walls, doors etc), solid furniture surfaces; disinfection of sanitary technical equipment (baths, sinks and etc.), rubber mats, cleaning equipment, linen, tableware and glassware, items for personal care and personal hygiene (hot-water bottles, oilcloth, thermometers and etc.), footwear of rubber, plastic and other polymer materials, toys (except for soft ones), wastes, disposable medical items (cotton pellets, tampons, caps, sheets, capes, instruments etc.), instruments (manicure, pedicure, cosmetic), items for dishwashing, clear outs.

Modes of disinfections of the objects in cases of different infections are presented in tables 2-7.

**3.2** Surfaces in premises (floor, walls and others), surfaces of devices, equipment, solid furniture surfaces are wiped with waste cloth moistened with the detergent solution. The norm of detergent consumption in case of wiping – 100 ml/m<sup>2</sup>. After cleaning the premises with the detergent they should aired.

To struggle with mould in the premises all surfaces should be cleaned with 10% solution of the detergent, then with the solution of the same concentration one more time. Disinfection retention time is 120 minutes; for prevention of mould growth surfaces are wiped with 10% solution of the detergent 1 time a month.

**3.3** Sanitary technical equipment (baths, sinks and so on) are processed with the detergent solution with a brush or bristle brush with an average working solution consumption - 200 ml/m<sup>2</sup>. Rubber mats are disinfected with wiping or immersion into the detergent solution. After disinfection sanitary technical equipment is washed with water.

**3.4** Items for personal care and hygiene care are immersed into the detergent solution or wiped with waste cloth moistened with the detergent solution. After disinfection they are thoroughly washed with flowing drinking water.

**3.5** Footwear of rubber, plastic or other polymer materials are immersed into detergent solution. After disinfection they are washed with flowing drinking water.

**3.6** Small toys are completely immersed into the container with the detergent solution preventing them from rising onto the surface detergent solution. After disinfection they are washed with flowing drinking water.

**3.7** Tableware free of food wastes is immersed into the detergent solution with a solution consumption of 2 litres per one set of tableware, after this they are washed with flowing drinking water.

**3.8** Items for dishwashing are immersed in working detergent solution . After disinfection retention time they are rinsed and dried.

**3.9** Linen is immersed in the container with detergent solution with a solution consumption of 5 litres per one kg of dry linen. The container is covered with the top. After disinfection the linen is washed and rinsed.

**3.10** Cleaning equipment is immersed into the detergent solution. After this it is washed with water.

**3.11** Medical wastes – disposable items : cotton pellets, tampons, instruments and so on are collected into a separate container with 3% detergent solution; sheets, capes, caps are immersed into 3% detergent solution; after disinfection retention time (60 min)they are utilized.

**3.12** Disinfection of instruments is carried out in plastic, enameled (enamel should not be damaged) containers covered with tops. Instruments are immersed into 2% working solution of the detergent for 60 minutes. Dismountable details are to be immersed when divided. Items

having locking parts are immersed unlocked but before this one should make several locking movements in the solution for its better penetration into hard-to-reach areas. While disinfection retention time channels and cavities are to be filled in (without airlocks) with the detergent solution. Thickness of the solution layer should not be less

After items processing they are washed with flowing water for 3 minutes.

The temperature of working solutions should be no less than plus 18°C.

Working detergent solutions should be applied for disinfection and pre-sterilization cleaning including cases when they are combined in one process many times but not for more than within 14 days.

**3.13.** In case of preventive disinfection and clear outs at municipal enterprises, educational establishments, institutions of culture, leisure, social welfare, penitentiary and child welfare institutions the detergent is used in the modes recommended for disinfection in cases of bacterial infections. (Table 2)

At hairdresser's, saunas, swimming pools, sport complexes the detergent is used in the modes recommended in cases of dermatomycosis. (Table 3)

**Table 2** - Modes of Disinfection of the Objects with Solution of the Detergent "Sabisept M" in Cases of Bacterial Infections (except for Tuberculosis)

Object for disinfection	Solution concentration (in accordance with the detergent), %	Disinfection time, min	Mode of disinfection
Surfaces in the premises, surfaces of devices, equipment, solid furniture surfaces, sanitary transport	0.1	60	Wiping
Sanitary technical equipment	0.1	90	Wiping
Tableware free of food wastes	0.2	60	Immersion
	0.5	15	
Tableware with food wastes	1.0	60	Immersion
Not dirty linen	0.2	60	Soaking
	0.5	30	
Linen soiled with discharges	2.0	60	Soaking
Items for personal care and hygiene	0.2	60	Wiping
	0.5	30	
	0.5	60	Immersion
Items for dishwashing	2.0	60	Immersion
Toys	0.2	60	Wiping
	0.5	30	
	0.5	30	Immersion
Cleaning equipment	2.0	60	Soaking

**Table 3** - Modes of Disinfection of the Objects with Solution of the Detergent "Sabisept M" in Cases of Dermatomycosis

Object for disinfection	Solution concentration (in accordance with the detergent), %	Disinfection time, min	Mode of disinfection
Surfaces in the premises, surfaces of devices, equipment, solid furniture surfaces,	4.0	60	Wiping
Sanitary technical equipment	4.0	60	Wiping
Rubber mats	4.0	60	Wiping or immersion

Footwear of rubber, plastic and other polymer materials	2.0	60	Immersion
Not dirty linen	3.0	30	Soaking
Linen soiled with discharges	3.0	60	Soaking
Items for personal care and hygiene	2.0	60	Immersion
	4.0	60	Wiping
Cleaning equipment	3.0	60	Soaking

#### 4. Safety Measures.

- 4.1 People under 18, people being allergic and sensitive to chemical substances should not have access to work with the detergent.
- 4.2 Preparation of working solutions should be carried out only in case of protecting hands with rubber gloves, and protecting eyes with hermetic glasses.
- 4.3 During work one should not splash solutions and avoid contact with the skin and eyes.
- 4.4 Works involving wiping with working solutions can be carried out without protection of respiratory organs and in patients' presence. Hand skin should be protected with rubber gloves.
- 4.5 On carrying out works one should observe the rules of personal hygiene. After work open body parts (face, hands) are to be washed with water and soap.
- 4.6 The detergent should be stored separately from pharmaceuticals, food products and out of children's reach.

#### 5. First Aid

5.1 In case of violation safety measures while working with the detergent there can be irritation of upper respiratory passages, eyes and skin. If there are occur the symptoms of irritation of respiratory organs, one should immediately stop working with the detergent, come out to the fresh air or to another room and the room is to be ventilated. The throat and the nasal cavity are to be washed with water. One should contact the doctor if necessary.

5.2 In case of direct contact with the skin one should immediately remove the detergent from the skin with water and apply softening cream.

5.3 In case of direct contact with eyes one should washed the eyes with large amounts of water for 10-15 minutes, drop in 30% solution of sulfacyl sodium and immediately contact the doctor.

5.4 In case of taking the detergent in one should drink several glasses of water, then take in 10-20 crushed absorbent carbon, then contact the doctor.

#### 6. Physical – Chemical Methods of Detergent Control

6.1 The detergent is controlled in accordance with parameters in Table 4.

**Table 4** – Physical –Chemical Parameters of Detergent Control

Parameters	Norm
Appearance	Transparent liquid with the coloration ranging from colorless to yellow
of basic nitrile and basic nitrile hydrochloride in conversion to basic nitrile, %	3.0 - 4,0
Mass concentration of alkyldimetilbenzylammonia chloride, %	11.0 – 13.0
the detergent with mass concentration of 2% at 20 °C, unit pH	5.6 – 8.0

6.2 Defining the appearance.

The state of appearance is defined visually by placing 50 cm<sup>3</sup> of the analyzed product into a dry cylinder and watching it at the passing light.

### 6.3 Defining of mass concentration of basic nitrile and basic nitrile hydrochloride in conversion to basic nitril

Equipment, reagents, solutions

Ionometer or pHmeter of any brand with permissible deviation of no less than 0.05 units pH.

Electrodes: indicatory, glass, auxiliary – silver chloride (or calomel).

Magnet mixer

Laboratory scales of the forth class of accuracy.

Burette of the volume 10 cm<sup>3</sup>

Laboratory glassware

Cylinder of the volume of 50 cm<sup>3</sup>

Distilled water

Hydrochloric acid, solution of concentration with (HCl) = 0.5 mole/dm<sup>3</sup>

Sodium hydrate of concentration with (NaOH) = 0.5 mole/dm<sup>3</sup>

Isopropyl alcohol

Analysis carrying out

One should weight 10 –12 g of the tested product in the glass of 100 or 250 cm<sup>3</sup> (results of weighing in grams are taken down up to the second decimal sign). 40 cm<sup>3</sup> of isopropyl alcohol is added to the glass and carried out potentiometer titration of basic nitrile hydrochloride with the solution of sodium hydrate while mixing with magnet mixer. Then to the obtained solution one should add 1-2 ml of sodium hydrate solution, mix and carry out potentiometer titration with the solution of hydrochloric acid.

The curve of potentiometer titration with the solution of hydrochloric acid has two potential jumps: the first one corresponds to neutralization of the excessive amount of sodium hydrate, the second one - to neutralization of total amount of basic nitrile occurred as a result of titration of basic nitrile hydrochloride and the amine contained in the product test. Near the point of equilibrium the solution of the titrate is added in portions of 0.1 cm<sup>3</sup>, the volume of titrate of the corresponding point of equilibrium is calculated with the method of second derivative coefficient.

Results processing

Mass concentration of basic nitrile hydrochloride (X<sub>1</sub>) in percentage in accordance with the formula:

$$X_1 = \frac{V_1 \cdot M_{\text{BNH}} \cdot 0,5 \cdot 100}{m \cdot 1000}, \text{ where}$$

V<sub>1</sub> is the volume of solution of sodium hydrate with exact concentration of 0.5 mole/dm<sup>3</sup>, spent on titration of basic nitrile hydrochloride, cm<sup>3</sup>

M<sub>BNH</sub> is average molecular mass of basic nitrile hydrochloride calculated in accordance with the formula: M<sub>BN</sub> + M<sub>HCl</sub>, equal to M<sub>BN</sub> + 36.5;

M<sub>BN</sub> is molecular mass of basic nitrile (stated in the passport for the detergent);

m is the mass of the analyzed product, g.

Mass concentration of the basic nitrile and basic nitrile hydrochloride in conversion to basic nitrile (X<sub>2</sub>) is calculated in percentage according to the formula:

$$X_2 = \frac{V_2 \cdot M_{\text{BN}} \cdot 0.5 \cdot 100}{m \cdot 1000}, \text{ where}$$

V<sub>2</sub> is the volume of solution of hydrochloric acid of exact concentration of 0.5 mole/dm<sup>3</sup> spent on titration of the total amount of basic nitrile resulted from titration of basic nitrile hydrochloride with sodium hydrate and the amine contained in the product;

M<sub>BN</sub> is molecular mass of basic nitrile (stated in the passport for the detergent);

m is the mass of the analyzed product, g..

For the result of the analysis one should take the average value of the results of two parallel definitions, absolute deviation between which does not exceed the permissible deviation, equal to 0.2 % in case confidence probability is P=0.95.

### 6.4 Measuring of mass concentration of alkyldimetilbenzylammonia chloride.

Equipment, glassware, reagents

Laboratory scales of general use of the 2<sup>nd</sup> class of accuracy

Measuring flasks of the following volumes 100, 200, 250, 500, 1000 cm<sup>3</sup>

Flask of KH. type of 100 cm<sup>3</sup>

Glass of 100 cm<sup>3</sup>

Cylinder of 10.25 cm<sup>3</sup>

Pipettes of 2, 5, 10 cm<sup>3</sup>

Burette of 5, 10 cm<sup>3</sup> with scale interval of 0.02 cm<sup>3</sup>

Sodium chloride, chemically pure, of the solution with concentration of (NaCl)= 0.1 mole/dm<sup>3</sup>.

Silver nitrate, solution of concentration (AgNO<sub>3</sub>) = 0.1 mole/dm<sup>3</sup>.

Ethanol

Isopropyl alcohol

Indicator: fluoresceine in accordance with the normative document, alcoholic solution of mass concentration 1 g/dm<sup>3</sup> or fluoresceine - sodium (uranin) in accordance with the normative document, water solution of mass concentration of 1 g/dm<sup>3</sup>.

Distilled water

Preparation for analysis

Preparation of the solution of sodium chloride of concentration (NaCl)= 0.1 mole/ dm<sup>3</sup>.

0.5845 g of sodium chloride is weighed and transferred to the measuring flask of 100 cm<sup>3</sup>, then distilled water is added, weighing is dissolved and diluted up to the mark with distilled water and thoroughly mixed.

Preparation of the solution of silver nitrate with concentration of (AgNO<sub>3</sub>) = 0.1 mole/dm<sup>3</sup>: 1.6987 g. of silver nitrate is weighed, transferred to the measuring flask of 100 cm<sup>3</sup>, then distilled water is added, and diluted up to the mark with water and thoroughly mixed.

The prepared solution is stored in dark glassware.

Fixing concentration of the solution of silver nitrate

2 (5) cm<sup>3</sup> of the solution of sodium chloride is placed into the conic flask, then distilled water is added into the flask up to 20 cm<sup>3</sup>. 10 cm<sup>3</sup> of isopropyl alcohol and 2-3 drops of indicator. The content of the flask is titrated with the solution of silver nitrate while intensive mixing. In the point of equilibrium there is the transfer of yellow-green coloration into rose-red. The average volume of the solution of silver nitrate (two titrations) spent on titration. The deviation between volumes of silver nitrate spent on titration should not exceed 0.04 cm<sup>3</sup>.

Concentration of the solution of silver nitrate C in mole/dm<sup>3</sup>, calculated according to the formula:

$$C = \frac{0,1 \cdot V_1}{V_2}, \text{ where:}$$

0.1 – concentration of the solution of sodium chloride, mole/dm<sup>3</sup>

V<sub>1</sub> – volume of the solution of sodium chloride taken for titration, cm<sup>3</sup>;

V<sub>2</sub> – volume of the solution of silver nitrate spent on titration, cm<sup>3</sup>.

Analysis carrying out

0.5000 ± 0.0200 g of the detergent is weighed in the conic flask, 20 cm<sup>3</sup> of distilled water is added, then 10 cm<sup>3</sup> of isopropyl alcohol and 2-3 drops of indicator are added and titrated with the solution of silver nitrate on intensive mixing till the transfer of coloration from green-yellow to rose-red.

Results processing.

Mass concentration of alkyldimetilbenzylammonia chloride X<sub>3</sub> in % is calculated according to the formula:

$$X_3 = \frac{V \cdot C \cdot M \cdot 100}{m \cdot 1000} - X_1 \cdot \frac{M}{M_{\text{BNH}}}, \text{ where:}$$

V is volume of the solution of silver nitrate spent on titration, cm<sup>3</sup>;

C is concentration of the solution of silver nitrate, mole/dm<sup>3</sup>;

M is average molecular mass of alkyldimetilbenzylammonia chloride (stated in the passport for the detergent),

m is the mass of the detergent weighing, g;

X<sub>1</sub> is the mass concentration of basic nitrile chloride (p.6.3), %,

For the result of analysis one should take an average value of two parallel measurements, absolute deviation between which should not exceed 0.2% in case confidence probability is  $P = 0.95$ .

Permissible absolute total deviation of the measuring results is  $\pm 0.4\%$  in case confidence probability is  $P = 0.95$ .

**6.5** Measuring the parameter of the hydrogen ions activity

**6.6** Measuring the parameter of the hydrogen ions activity, pH of water solution of the detergent with mass concentration of 2% is carried out in accordance with the State Standard P 50550.-93 with potentiometer method.

## **7. Transportation and Storage Conditions**

**7.1** The detergent is transported by railway and automobile transport in covered vehicles in accordance with the rules of goods transportation valid for the corresponding means of transport.

**7.2** The detergent is stored in the producer's package at the temperature not higher than plus 40°C far from the sources of light. It is possible to transport the detergent at the temperature ranging from minus 30°C to plus 40°C. In case of detergent freezing it should be kept at the temperature of plus 20-40°C till occurrence of homogeneous transparent solution. After its thawing the detergent preserves its activity and does not lose its qualities.

**7.3** In case large amounts of the detergent is poured out it should be diluted with large amounts of water or be absorbed with noninflammable substances (sand, rasping, waste cloth, silica gel), be collected into containers and sent to utilization. Cleaning of the poured detergent should be carried out in special uniform: rubber apron, rubber boots and personal protection equipment for hand skin (rubber gloves), eyes (protection glasses), respiratory organs (multifunctional respirators of the type PY 60 M, ПИГ-67 with the plug of B type).

Pouring the detergent into the collecting system is permissible only if it is diluted.